

High Prevalence of Fluoroquinolone-Resistant *Campylobacter jejuni* in the FoodNet Sites: A Hazard in the Food Supply

Rossiter S, Joyce K, Ray M, Benson J, Mackinson C, Gregg C, Sullivan M, Vought K, Leano F, Besser J, Marano N, Angulo F, and the EIP FoodNet Working Group

Background: *Campylobacter*, the most common bacterial cause of foodborne illness, infects an estimated 2.4 million people annually in the United States. Fluoroquinolones (e.g., ciprofloxacin) are commonly used in adults to reduce the severity and duration of the symptoms. Fluoroquinolones have also been used since late 1995 in chickens. Since chickens are the most common source of *Campylobacter jejuni* infections, we tested *Campylobacter* isolated from ill persons and chickens purchased from grocery stores for fluoroquinolone resistance.

Methods: From 1997 to 1999, public health laboratories in the Emerging Infections Program's Foodborne Diseases Active *Salmonella* Network (FoodNet) sites in California, Connecticut, Georgia, Maryland, Minnesota, New York, and Oregon forwarded one *Campylobacter* isolate per week to CDC. From January to June 1999 Georgia, Maryland, and Minnesota also forwarded *Campylobacter* isolated from chickens purchased from grocery stores. Isolates were presumptively identified as *C. jejuni* or *C. coli* based on characteristic motility observed using dark-field microscopy, oxidase positivity, and hippurate hydrolysis. Hippurate negative isolates were further characterized using species-specific polymerase chain reaction. E-test was used for ciprofloxacin susceptibility testing.

Results: The prevalence of ciprofloxacin resistance among *Campylobacter jejuni* isolates from humans increased from 13% (27/205) in 1997 to 20.5% (38/185) in 1999. Among humans, ciprofloxacin resistance was found in all sites in 1999, ranging from 4.5% (1/22) in Oregon to 45.2% (14/31) in Connecticut. *Campylobacter jejuni* was isolated from 33.9% (61/180) of chickens; 24.5% (15/61) of these isolates were ciprofloxacin resistant. Ciprofloxacin resistance among *Campylobacter* isolated from chickens was common in all sites, ranging from 15.8% (3/19) in Georgia to 40% (8/20) in Maryland.

Conclusion: A high prevalence of fluoroquinolone resistance was detected among *Campylobacter jejuni* isolates from ill persons and chickens from grocery stores. Chickens represent a significant reservoir for fluoroquinolone-resistant *Campylobacter jejuni* to which humans are routinely exposed. Furthermore, an increase in the prevalence of ciprofloxacin resistance among human *Campylobacter* isolates followed the approval of fluoroquinolone use in chickens. The continued use of fluoroquinolones in chickens threatens the efficacy of fluoroquinolones for treatment of *Campylobacter* infections in humans. Mitigating action is necessary to preserve the efficacy of fluoroquinolones for the treatment of *Campylobacter* and other foodborne infections in humans.

Suggested citation:

Rossiter S, Joyce K, Ray M, Benson J, Mackinson C, Gregg C, Sullivan M, Vought K, Leano F, Besser J, Marano N, Angulo F, and the EIP FoodNet Working Group. High prevalence of fluoroquinolone-resistant *Campylobacter jejuni* in the FoodNet Sites: a hazard in the food supply. 2nd International Conference on Emerging Infectious Diseases. Atlanta, GA, July 2000.